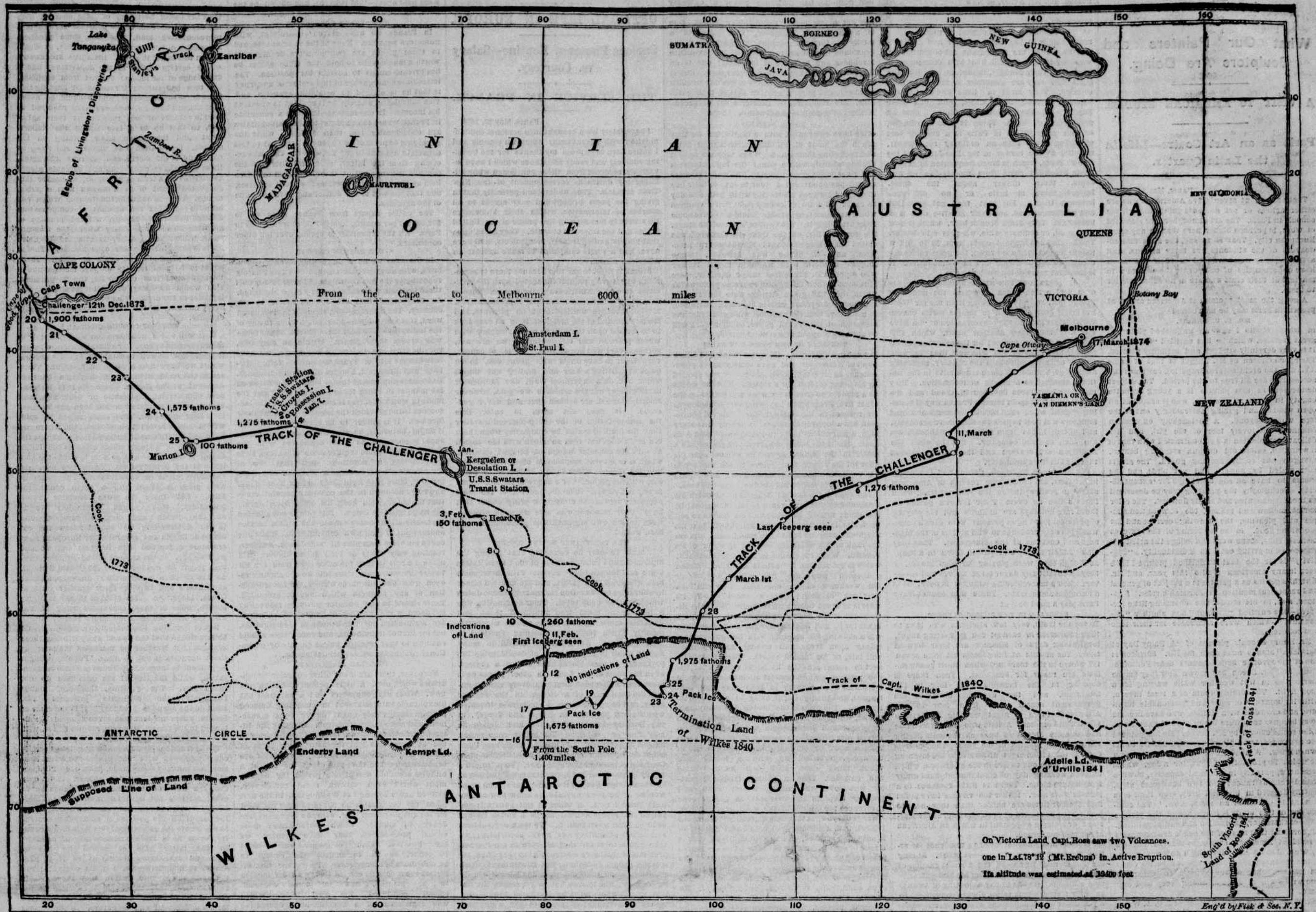


## THE ANTARCTIC REGION.



## WILKES' CONTINENT.

The Antarctic Land of the American Explorer Evaporated.

## THE CHALLENGER'S REPUTATION.

A General Review of Exploration in the South Seas.

Compared with the Arctic regions the Antarctic has excited little attention; partly because of their remoteness from the centres of civilization, and partly from the fact that the discovery of the Northwest Passage, to stimulate enterprise, the Southern seas have possessed, since the time of Columbus, an interest only as a route to the Indies; but this interest did not extend beyond Cape Horn and the Cape of Good Hope. Gradually, as the world became unfolded, stray islands were stumbled upon here and there, and a ship being driven a long way to the southward of Cape Horn, found the South Orkney Islands, and great numbers of seals were discovered thereon. The whale fishery grew to be a profitable branch of adventurous business, and it was soon added to the seal fishery. As investigations were pushed year by year, it was discovered that the desolate islands, bathed by the cold waters of the Antarctic, were almost everywhere alive with seals. The largest of the species came to be known as sea elephants and sea lions, and others were discovered which produced a fine fur that has lately come to be of great value and to be highly prized for its softness and beauty. So great did the interest become, that the

BRITISH GOVERNMENT resolved upon an exploration, which had thus far been left to the whale and seal fishers themselves. Thus Captain Cook became the first official authorized describer of the riches of the Antarctic regions. Thus far, when an island, rich with seals or sea elephants and sea lions, was discovered, the secret was carefully kept; and often, as is so well told in Cooper's "Sea Lions," one ship which had returned well laden was followed and watched afterwards, and many were the tricks and expedients to shake off an unwelcome companion. Cook circumnavigated the world without coming upon any extensive bodies of land in the South, though a great deal of ice was seen, and at one time, in latitude 42 deg., the ice was of extraordinary height and grandeur, and it came to be known as "Cook's ice barrier." Cook made his furthest southing in February, 1774, when he reached latitude 71 deg. south, 40 deg. to the westward of Cape Horn; but there was nothing but ice there. Then came Bellinghausen, in 1820, who struck the parallel of 70 deg. in the South Atlantic; then Weddell, in 1823, who touched the same ice barrier in latitude 75 deg. Briscoe, in 1824, found Graham's Land and plenty of ice. In 1835 Kempt found land in latitude 68 deg. south, longitude 62 deg. west. Then there came a long interval of inaction, when almost at the same moment three great nations—the United States, Great Britain and France—resolved to send expeditions for discovery around the world, and in the course of their voyages they all went as near the South Pole as they could get. These expeditions were commanded respectively by Captain Charles Wilkes, Sir James Ross and Dumont d'Urville, all famous in the history of maritime adventure. D'Urville made the least reputation by his daring work; Wilkes made the longest voyage and excited the largest share of public attention by the announcement of the discovery of an Antarctic continent, and Ross reached

nearer the South Pole than any one had gone before or has gone since, claiming the discovery of land as far south as latitude 79 deg., where ice and not land interrupted his further progress, and where a great volcano more than 12,000 feet high belched forth fire and flame in the midst of boundless ice. This volcano he named Mount Erebus, while a second mountain, supposed to be an extinct volcano, was named the Terror; the two names being those of his two ships, which afterwards completed their wonderful career of peril in every sea and climate by carrying the memorable expedition of Sir John Franklin to the Arctic Sea, there to be crushed to pieces by the thick-ribbed ice and lost with every soul on board. There is a wonderful romance connected with these two ships and a grand tragedy—south to latitude 79 deg., north to 77 deg.—they may be said to have compassed almost the entire earth.

THE UNEXPLORED AREA. Taking the different points which have been marked by these different expeditions, some meeting land and all meeting ice, and connecting them all with a continuous line, we have an area around the South Pole of about 6,000,000 wholly unexplored, or, in order to make the statement more clear, an area almost equal to that of all North America.

DISCOVERIES. Concerning the discovery of Graham Land by Briscoe in 1824, in latitude 68 deg. south, longitude 60 deg. east of Enderby Land, by the same navigator in 1821, in latitude 66 deg. south, longitude 60 deg. west of Kempt; land in latitude 65 deg. south, longitude 60 deg. west of Ross's South Victoria in 1841, ranging from 70 deg. to 75 deg. south, and in longitude 170 deg. west, there has never been any serious dispute; but much has been said and written, and much argument has been raised respecting the line of land lying nearly on the Antarctic circle, and marked on all the newest charts as stretching from about longitude 95 deg. to 105 deg. west, and which was the name of Wilkes' Antarctic Continent, and along which we find such names as these marked with extreme accuracy as to details—Ringold Knoll, Peacock Bay, Disappointment Bay, high land, covered with snow; Porpoise Bay, Snoddy High Land, Repulse Bay and Termination Land, this latter being in the immediate region of Cook's ice barrier of 1774.

Wilkes lays great stress upon this discovery in his narrative, and replies to Ross, who, before the narrative was published, had heard of Wilkes' claim to the discovery of an Antarctic continent, and disputed its existence in his own published account. The subject was at the time the occasion of a good deal of acrimonious discussion, and Wilkes' final reply in his narrative is as follows, prefacing it with observing that he hopes this part of the labors of the expedition will prove interesting to all of his countrymen who possess a feeling of national pride:

"The credit of these discoveries," he observes, "has been claimed on the part of one foreign nation, and their extent, my actual existence, called in question by another; both having rival expeditions, one at the same time, the other the year succeeding (referring to the French expedition of D'Urville, of 1840, and the English expedition of Ross, of 1841.) Each of these nations, with what intent I shall not stop to inquire, has seemed disposed to rob us of the honor, by underrating the importance of our own researches, and would restrict the Antarctic land to the small parts they respectively saw; however willing I might be, in a private capacity, to avoid contesting their statements and let truth make its own way, I feel it due to the honor of our flag to make a proper assertion of the priority of the claim of the American expedition and of the greater extent of its discoveries and researches.

"That land does exist within the Antarctic circle is now confirmed by the united testimony of both French and English navigators. D'Urville, the celebrated French navigator, within a few days after land was seen by the three vessels of our squadron, reports that his boats landed on a small point of rocks at the place (as I suppose) which appeared accessible to us in Piner's Bay, whence the Vincennes was driven by a violent gale. This he called Clarie Land, and testifies to his belief of the existence of a vast tract of land. Where our view of it has left no doubt of its existence, Ross, on the other hand, penetrated to the latitude of 79 deg. 8, in the succeeding year, coasted for some distance along a lofty country connected with our Antarctic continent and establishes beyond all cavil the correctness of our assertion that we have discovered, not a range of detached islands, but a vast Antarctic continent. How far Captain Ross was guided in his search by our previous discoveries will best appear by reference to the chart, with a full account of the proceedings of the expedition, which I sent to him, and which I have inserted in appendix 24 and 25. Although I have never received any acknowledgment of their receipt from him personally yet I have heard of their having reached his hands a few months prior to his Antarctic cruise. Of this, however, I do not complain, and feel only the justifiable desire to maintain the truth in relation to a claim that is indisputable. The following narrative must, I feel satisfied, leave no doubt in any unprejudiced mind of the correctness of the assertion that we have discovered a vast continent; but I would ask in advance, who was there prior to 1840, either in this country or in Europe, that had the least idea that any large body of land existed to the south of New Holland, and who is there that now doubts the fact, whether he admits it to be a vast continent or contends that it is only a collection of islands?"

"Examine all the maps and charts published up to that time, and upon them will any traces of such land be found? There will not, and for the very best of reasons—none was known or even suspected to exist. We ourselves anticipated no such discovery; the indications of it were received with doubt and hesitation. I myself did not venture to record in my private journal the certainty of land until three days after those best acquainted with its appearance in these high latitudes were assured of the fact; and finally, to remove all possibility of doubt and to prove conclusively that there was no deception in the case, views of the same land were taken from the vessels in three different positions, with the bearings of its peaks and promontories, by whose intersection their position is nearly as well established as the peaks of any of the islands we surveyed from the sea.

"All doubt in relation to the reality of our discovery gradually wore away, and towards the close of the cruise of the Vincennes along the icy barrier the mountains of the Antarctic Continent became familiar and of daily appearance, so much that the log book, which is guardedly silent as to the time and date of its being first observed, now speaks throughout of 'the land.'"

ROSS DISPUTED THE EXISTENCE of the Antarctic continent altogether, and D'Urville claimed the original discovery of an outlying portion of it, nearly midway between Ross's discovery and the "Termination Land" of Wilkes, to which he gave the names of Clarie Land and Adelia Land. After the discussion over these discoveries was ended very little was said or heard in relation to the matter until the

VOYAGE OF THE CHALLENGER again opened the subject by the letter of Lieutenant Hynes, which we published on Tuesday last. Meanwhile the English charts have steadily ignored the existence of Wilkes' Continent by never publishing anything more than simply his "Termination Land" upon them. In this we can perceive something of national jealousy. All explorers are natural rivals, and the nations they represent are not slow to stand by their countrymen, oftentimes to the great confusion of geography, and in this instance, while the English charts ignore the Antarctic Continent of Wilkes altogether, the American charts display it conspicuously. The Challenger is on a voyage of discovery around the world. Her object is mainly to make deep sea soundings, which, in certain latitudes, will have a conspicuous bearing upon the laying of future telegraphic cables. The deep sea currents, with their temperature and the animal life at great depths, are also considered in their investigations, and many important results, quite in antagonism with previous theories, have been already published. The Challenger left the Cape of Good Hope December 17, 1873, on route for Kerguelen Land (the Desolation Island of Captain Cook), which lies on the Antarctic Circle, in longitude 70 deg. east, and where one of the parties of the United States steamer Swatara, which sails to-day, is to be landed for the observation of the coming transit of Venus. Passing on the way the Crozet group (where another party is to be landed from the Swatara), they reached Kerguelen Land and then stood southward and eastward to look after Wilkes' Continent. Kerguelen Land is described as having (it was then the Antarctic summer) much the same climate as the winter of England, the temperature ranging from 35 deg. to

58 deg. There were no trees. Vegetation was very scant, chiefly consisting of moss, but sea fowl were abundant, as were also seals and sea elephants. Our Swatara scientific party, who will be compelled to spend at least six months on the island, are not likely to have the most pleasant time of it on this bleak desert rock. In the vicinity there are about a thousand small islands not laid down on the charts.

The first ice was sighted from the Challenger on the 11th February, in latitude 61 deg. longitude 80 deg. east, where soundings were obtained in 1,200 fathoms. An iceberg was seen 217 feet high close by. During the next few days they sailed through loose ice, surrounded by numerous icebergs, which were flat topped. On the 14th of February they were stopped by the pack ice, in latitude 65 deg. 42 min., longitude 79 deg. 40 min. east. Following the line of this pack ice they finally crossed the Antarctic Circle on the 16th of February, in longitude 78 deg. east. Beyond the Antarctic Circle they penetrated only a few miles, reaching within 1,400 miles of the South Pole and 120 miles to the southward of Wilkes' Termination Land, though some 420 miles to the westward of it, and at least twice that far to the southward of the position assigned by Cook to his famous impenetrable ice barrier of 1774.

They saw a great deal of ice and eighty-seven icebergs were in view at one time. Sounding, they obtained 1,675 fathoms, or nearly two miles. There was no appearance of glaciers, from which icebergs are necessarily formed, and therefore there could be no land within reach of vision, as glaciers are always of mountain origin. The temperature of the air was 22 deg. with a good deal of snow; the temperature of the water was 27 deg. They were surrounded not only by icebergs, but dozens of whales were spouting about them all the time. They also saw shoals of grampuses. The sea was perfectly open to navigation to the southwest on the 16th of February, with nothing seriously to impede navigation. After the 16th they stood to the eastward, and recrossing the Antarctic Circle on the 24th of February, were in latitude 64 deg. 15 min., longitude 94 deg. 41 min. east, about 150 miles south of Cook's ice barrier and on the very spot of Wilkes' Termination Land. Here they obtained soundings in 1,300 fathoms, or nearly a mile and a half. The sky was clear, and no land was to be seen. Eighty-eight icebergs were counted at one time. While floating thus upon the site of the most conspicuous part of Wilkes' Antarctic Continent they threw overboard their dredge to ascertain if they could haul up any part of it, as it had certainly gone down something like a mile and a half beneath the waves if it had indeed ever risen above them. Their further progress to the eastward was arrested by heavy pack ice, and a gale springing up, accompanied by thick weather, they were driven northward, and passing their last iceberg in latitude 63 deg., finally reached Melbourne, Australia, after a voyage from the Cape of about 8,000 miles, on the 17th of March, being just three months on this very remarkable passage. They had many narrow escapes from the icebergs. Altogether, their experience among the ice must be regarded as most remarkable, being, as they were, fifteen days within the region regarded by Cook as impenetrable in consequence of the ice, and for half that time within a region since the time of Cook regarded as solid land with mountain peaks of perpetual snow.

The period of the year when Wilkes visited this same region was nearly the same as that of the Challenger. The latter, it will be observed, came from the west to the east, while Wilkes sailed from the east to the west. The first land which he claimed to have seen was in about latitude 64 deg., longitude 105 deg. east, and from that point to the westward land was constantly being reported until he had finally reached this Termination Land over which the Challenger has just sailed. On the 14th of February he was in latitude 65 deg., longitude 100 deg. east, when he says:—

At daylight we again made sail for the land, beating in for it till eleven A. M., when we found that further progress quite impossible in consequence of the great number of icebergs. I then judged it was seven or eight miles distant. The day was remarkably clear and the land very distinct. By measurement we made the extent of coast of the Antarctic continent which was there in sight seventy miles, and by approximate measurement 3,000 feet high. It was entirely covered with snow; on running in we passed several icebergs, greatly discolored with earth, and finding we could not approach the shore any nearer, I determined to land on the largest ice island that seemed accessible to make dip, intensity and variation observations. On coming up with it, about one and a half miles from where the barrier had stopped us, I hove the ship to, lowered the boats, and fortunately effected a landing. We found embedded in it in places boulders, stone, gravel, sand and mud or clay; the largest specimens were of sandstone and basalt. Many specimens were obtained, and it was amusing to see the eagerness and desire of all hands to possess themselves of a piece of the Antarctic continent. These pieces were in great demand during the remainder of the cruise. In the centre of this iceberg was found a pond of most delicious water, over which was a sum of ice about ten inches thick. We obtained from it about 500 gallons. We remained on this iceberg several hours and the men amused themselves to their hearts' content sliding. The pond was three feet deep, extending over an area of an acre, and contained sufficient water for half a dozen ships. \* \* \* There was no doubt that this iceberg had been detached from the land, which was about eight miles distant.

Accompanying this detailed description Captain Wilkes publishes in his narrative

A PICTURE REPRESENTING THE ICEBERG on which the party landed, and where they all seem to be very joyfully with the ice barrier—beyond, and in distance, the rounded topped, snow-capped mountains of the Antarctic continent. From this point Wilkes pursued his way to the westward, and on the 16th of February was in 64 deg. 42 min. south and longitude 104 deg. east, nearly on the same parallel, and 9 deg. to the eastward of the position of the Challenger, when she started out of the ice in her fruitless search for Wilkes' Land. As in the case of the Challenger, numerous whales were seen, and also plenty of birds, principally penguins, which seemed greatly enjoying themselves on the ice. On the 17th he was in longitude 97 deg. 37 min. east, in nearly the same latitude as before, and now they discovered the ice barrier, instead of trending east and west as before, ran north and south. Wilkes was very anxious to pursue his way further to the westward, in order to reach Enderby's Land, believing that the continent he thought he had discovered extended that far into the sea. He was now, as he reports, 200 miles further south than where Cook had found the ice barrier in 1774, and within a few miles of the position of the Challenger on the 23d, 24th and 25th of the same month of the present year. The same natural conditions were observed in both cases—numerous icebergs (Wilkes counted upwards of 100 at one time, without the aid of a glass)—a sea open enough for navigation, plenty of whales and birds. Some of the icebergs, or ice islands as he sometimes called them, were several miles long. Remarking upon their magnificence, he says:—

We enjoyed this beautiful sight with the more pleasure, for we had become used to them, and knew from experience that it was possible to navigate through them without accident. In the midst of all this there came a splendid exhibition of the aurora australis. It exceeded anything of the kind that I had heretofore witnessed. Its activity was inconceivable, darting from the zenith to the horizon in the most brilliant coruscating rays, proceeding from a point in the zenith, flamed in the most brilliant pencilings of light, like sparks of electric fire in vacuo and reappeared again to vanish. Forming themselves into one body, like an umbrella of fan shut up, again emerging to fit across the sky with the rapidity of light, they showed all the prismatic colors at once or in quick succession.

From this point the expedition stood northward and eastward, following the line of the ice barrier. Land, it was thought, lay to the west and south, but they could not get in with it through the ice. This was the Termination Land which the Challenger could not find. After encountering dangers of the most appalling character the expedition finally reached Australia, from whence it had started.

RESULTS. Now the question arises as to whether Wilkes saw land or only icebergs. No landing was at any

time effected, and except some pebbles and sand picked up on an iceberg there was nothing to show positively that there was land there at all; for the icebergs could not be formed without there being land, nor could boulders, pebbles and sand be found floating on ice in the open sea unless that ice had been formed on the land. For all glaciers are of mountain origin and are formed of snow, and the iceberg is simply a fragment broken from the glaciers. When in an iceberg boulders and sand are formed, they are known among those familiar with the subject to have been carried down by mountain torrents and deposited on the glaciers, or to have been hurled down from adjacent cliffs as we so often see in the Alps. The origin of an iceberg is simply this, as shown by the researches of Hayes, Hink and others in the Arctic regions. The snow falls upon the mountain tops, the summer sun partly melts it, the winter frosts freeze it, and thus a layer of ice is formed. Year by year and century by century this process goes on until there is a vast accumulation. But ice is not like rock, a solid unyielding mass, but is in a measure ductile, and, in consequence, the mountain ice slowly flows down the mountain sides. Were this not the case the mountains would climb up to an amazing height.

Hayes estimates the accumulation of ice on the Alps at a thickness of fifty-eight inches annually, which would, but for its steady downward flow, elevate Mont Blanc 4,000 feet in 1,000 years. The glacier is, in fact, the river of the rigid regions of the Arctic and Antarctic regions and of lofty mountains, which, like the Alps and Andes, by reason of their great elevation, have a climate similar to that of the poles. The river, it is true, is a hard and solid body of crystal ice, but it flows down to the sea, and the precipitations from the air which come in the form of snow, like the slopes leading to the mountain, melt and the water streams down the precipitations from the air which come in the form of rain. The glacier moves from seven to fourteen inches daily, according to the declivity and the temperature, and it is very steady, and is as a torrent tumbling from the mountain. Many of the Greenland glaciers are miles in width and thousands of feet in height, and they descend to the level of the sea, and the end of a candle would be held in the floor of an open stove. Not so, however, the Arctic and Antarctic glaciers, for there being in those regions no lower ice, the glaciers, as the melting process, even in midsummer, the glaciers must necessarily find its way into the sea, and the following state of the ice, forming a solid wall and front of ice, which is a continuation of the same inclined plane. At the foot of the valley it finally washes many miles out beyond the original level, forming a solid wall and front of ice, which is a continuation of the same inclined plane. At the foot of the valley it finally washes many miles out beyond the original level, forming a solid wall and front of ice, which is a continuation of the same inclined plane. At the foot of the valley it finally washes many miles out beyond the original level, forming a solid wall and front of ice, which is a continuation of the same inclined plane.

There can be no doubt that the non-existence of a considerable portion of Wilkes' continent had been proven by the researches of the Challenger expedition, just as another portion was previously shown to be of very doubtful existence by Sir James Ross, who claimed to have sailed right over it, as the Challenger has done in the present instance with the Termination. This, however, does not by any means disprove the existence of the land, as these extreme points of the claimed discovery, a log is no less a log with two pieces sawed off its ends, although its dimensions may be very much curtailed and as a log not be worth so much to the owner; but it is poor policy to burn the central piece up in spite and wantonness because the ends are gone. Let us save what we can of the Antarctic continent—a feat which can only be performed by sending out forthwith a government expedition to see what Ross and the Challenger have really left of our much boasted discovery. The honor of the country and the good name of the late gallant and enterprising Admiral Wilkes alike demand it.